WHAT IS CLAIMED IS:

1. A method for optimizing frequency of a clock signal provided for operations of a network switch, said network switch comprising a clock signal generator for generating said clock signal, and a plurality of input/output ports for communicating therevia with at least one network node, said method comprising steps of:

asserting a control signal to said clock signal generator according to a certain condition of said input/output ports; and

adjusting the frequency of said clock signal outputted from said clock signal generator in response to said control signal.

2. The method according to claim 1 wherein said certain condition of said input/output ports is a count of said input/output ports in use.

3. The method according to claim 2 wherein the step for adjusting the frequency of said clock signal comprises:

generating a first clock signal with a first frequency in response to a first control signal corresponding to a first count of said input/output ports in use;

generating a second clock signal with a second frequency higher than said first frequency in response to a second control signal corresponding to a second count of said input/output ports in use greater than said first count; and

generating a third clock signal with a third frequency lower than said first frequency in response to a third control signal corresponding to a third count of said input/output ports in use less than said first count.

4. The method according to claim 2 further comprising a step of subtracting a count of said input/output ports without connecting to any network node from a total count of said input/output ports included in said network switch to obtain said count of said input/output ports in use.

5. The method according to claim 1 wherein said certain condition of said input/output ports is data transmission rates of said input/output ports in use.

6. The method according to claim 5 wherein said certain condition of said input/output ports is an overall data transmission rate of all said input/output ports connecting to network nodes.

7. The method according to claim 6 wherein the step for adjusting the frequency of said clock signal comprises:

generating a first clock signal with a first frequency in response to a first control signal corresponding to a first overall data transmission rate of said input/output ports;

generating a second clock signal with a second frequency higher than said first frequency in response to a second control signal corresponding to a second overall data transmission rate of said input/output port higher than said first overall data transmission rate; and

generating a third clock signal with a third frequency lower than said first frequency in response to a third control signal corresponding to a third overall data transmission rate of said input/output port lower than said first overall data transmission rate.

8. A method for adjusting a frequency of a clock signal provided for operations of a network switch, said network switch comprising a clock signal generator for generating said clock signal, and a plurality of input/output ports for communicating with a plurality of network nodes, said method comprising steps of:

detecting connection states of said input/output ports with said plurality of network nodes;

adjusting the frequency of said clock signal according to said connection states

of said input/output ports with said plurality of network nodes; and

repeating said detecting and adjusting steps at intervals of a predetermined period.

9. The method according to claim 8 wherein said connection states of said input/output ports are detected by counting said input/output ports connecting to network nodes.

10. The method according to claim 8 wherein said connection states of said input/output ports are detected by summing the overall data transmission rate of the input/output ports connecting to network nodes.

11. A network switch for conducting data transmission among network nodes, comprising:

a first number of input/output ports for connecting to a variable number of network nodes, said variable number being equal to or less than said first number;

a connection-state detector in communication with said first number of input/output ports, detecting connection states of said input/output ports with said variable number of network nodes, and asserting a control signal according to said connection states of said input/output ports; and

a clock signal generator generating a clock signal having a frequency determined according to said control signal.

12. The network switch according to claim 11 wherein said connection states of said input/output ports are detected by counting said variable number of said network nodes.

13. The network switch according to claim 11 wherein said connection states of said input/output ports are detected by summing the overall data transmission rate associated with said variable number of network nodes.

14. The network switch according to claim 11 wherein said clock signal generator is a phase-locked loop clock signal generator.

15. The network switch according to claim 11 wherein said clock signal generator and said connection state detector are integrated in a control chip.